

Claims:

1. Membrane filter for submerged operation, having a frame (1) that can be lowered into a liquid to be purified, and several modules (2) disposed next to one another in a row, which modules each have a foot element (3) that can be attached to the frame (1), with a permeate collection space (4), tubes (5) for a fluid that are connected to both ends of the foot element (3), and hollow fiber membranes (6) cast into the foot element (3) with an open end,

whereby the hollow fiber membranes (6) are closed off at their other end and terminate in the liquid to be purified, freely movable, without being clamped in, whereby the tubes (5) are oriented vertically and connected with a collection line at the top, and whereby fiber holding devices (7) are attached to the tubes (5) for lateral guidance of the hollow fiber membranes (6),

characterized in that the fiber holding devices (7) are configured as U-shaped brackets that have a crosspiece (8) as well as end-side shanks (9) that can be attached to the tubes (5), and surround the hollow fiber membranes (6) of a module (2) on one side, in the longitudinal direction, as well as at the

ends in front of the tubes (5), because their shank length is adapted to the face width of the modules.

2. Membrane filter according to claim 1, characterized in that projections (10) are formed on the crosspiece (8) of the brackets (7), whereby the projections (10) form compartments (11) that are open on the side that lies opposite the crosspiece (8).
3. Membrane filter according to claim 2, characterized in that the crosspieces (8) of the brackets (7) have a profile with depressions (12), and that the projections (10) of the brackets (7) attached to an adjacent module (2), which projections form compartments (11), project all the way into the depressions (12).
4. Membrane filter according to claim 2 or 3, characterized in that the crosspieces (8) have projecting profiles (17) on their side that faces away from the projections (10), which profiles serve as baffles and keep the hollow fiber membranes (6) away from the end regions of the projections (10) of the adjacent bracket (7) on this side.
5. Membrane filter according to one of claims 1 to 4, characterized in that the modules (2) have several brackets (7) disposed at a distance from one another as fiber holding devices,

whereby the crosspieces (8) of the brackets (7) are disposed in a row, one on top of the other.

6. Membrane filter according to one of claims 1 to 5, characterized in that the modules (2) have several brackets (7) disposed at a distance from one another as fiber holding devices, whereby the brackets (7) are alternately offset in a mirror image to one another.

7. Membrane filter according to one of claims 1 to 6, characterized in that the brackets (7) of adjacent modules (2) are disposed at the same height or with a height offset.

8. Membrane filter according to one of claims 1 to 7, characterized in that the brackets (7) of adjacent modules (2) can be attached to the related tubes (5) with the same orientation of their shanks (9).

9. Membrane filter according to one of claims 1 to 8, characterized in that the brackets (7) of adjacent modules (2) are offset in a mirror image to one another.

10. Membrane filter according to one of claims 1 to 9, characterized in that the foot element (3) of the modules (2) is

composed of several base elements (13) that are the same and two head pieces (14), whereby a bundle of hollow fiber membranes (6) is cast into each base element (13), and that the permeate space (15) of the base elements (13) has an opening (16) for connecting another base element (13) or a head piece (15), at two opposite sides, whereby the permeate spaces (15) connected with one another at the connection openings (16) form the permeate collection space (14) of the module (2), and the tubes (5) of the module (2) are connected with the head pieces (14).